|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Name of Capsule | Astronaut | Rocket Used | Goals | Problems Encountered and Solutions | How was this flight different than previous flights? |
|  | Ham, the Chimp |  |  |  |  |
| Freedom 7 |  |  |  |  |  |
| Liberty Bell 7 |  |  |  |  |  |
| Friendship 7 |  |  |  |  |  |
| Aurora 7 |  |  |  |  |  |
| Faith 7 | Gordon Cooper |  |  |  |  |

**C:\Documents and Settings\Owner\Local Settings\Temporary Internet Files\Content.IE5\YF2ZQ47X\MC900241135[1].wmfWhen We Left Earth** Episode 1: Ordinary Supermen

**Name of the Project: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**When We Left Earth** Episode 1: Ordinary Supermen

**Name of the Project: \_\_\_\_\_\_Project Mercury\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_C:\Documents and Settings\Owner\Local Settings\Temporary Internet Files\Content.IE5\YF2ZQ47X\MC900241135[1].wmf**

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| --- | --- | --- | --- | --- | --- |
| Name of Capsule | Astronaut | Rocket Used | Goals | Problems Encountered and Solutions or Obstacles to Overcome | How was this flight different than previous flights? |
| None | Ham, the Chimp | Redstone Rocket | Prove that space travel would be safe for humans by making sure a chimp would survive | Doctors wanted to make sure humans would survive space flight | This was the first living organism to be launched into space by Americans |
| Freedom 7 | Alan Shepard | Redstone Rocket | Put a man into space and bring him back safely to Earth | Needed a pressurized capsule to protect the astronaut; Doctors were concerned about ability of humans to function in space | First American human to go into space |
| Liberty Bell 7 | Gus Grissom | Redstone Rocket | Give pilot more control, test new capsule | Explosive hatch blew while capsule was in the water; capsule filled with water and was lost; Grissom’s space suit filled with water and he almost drowned | New capsule design included a window, explosive hatch, and more control for the astronaut |
| Friendship 7 | John Glenn | Atlas Rocket | Orbit the Earth 3 times and return safely | Sensor indicated that the heat shield was loose which meant the capsule could have burned up on re-entry; it was really a problem with a micro-switch | First orbital flight for Americans; bigger and more powerful rocket needed to achieve orbital flight |
| Aurora 7 | Scott Carpenter | Atlas Rocket | Orbit the Earth 3 times; conduct visibility experiments; practice maneuvering capsule | Carpenter used too much fuel “sight-seeing” meaning that he might not have enough for re-entry; altitude gauge was 40o off and Carpenter landed 250 miles off target | More experimentation than had been done in previous missions—can astronauts move their craft how they want |
| Faith 7 | Gordon Cooper | Atlas Rocket | Orbit the Earth 22 times; spend 1.5 days in space | None mentioned | More time in space than ever before; astronaut slept in space for 1st time ever |

**When We Left Earth** Episode 2: Friends and Rivals

**Name of the Project: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

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| --- | --- | --- | --- | --- | --- | --- |
| Name of Mission | Astronauts | Rocket Used | Training and Additional Technology | Goals | Problems Encountered and Solutions or Obstacles to Overcome | How was this flight different than previous flights? |
| Gemini 3 |  |  |  |  |  |  |
| Gemini 4 |  |  |  |  |  |  |
| Gemini 7 |  |  |  |  |  |  |
| Gemini 6 |  |  |  |  |  |  |
| Gemini 8 |  |  |  |  |  |  |
| Gemini 9 |  |  |  |  |  |  |
| Gemini 12 |  |  |  |  |  |  |

**When We Left Earth** Episode 2: Friends and Rivals

**Name of the Project: \_\_\_\_\_\_Project Gemini\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

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| --- | --- | --- | --- | --- | --- | --- |
| Name of Mission | Astronauts | Rocket Used | Training and Additional Technology | Goals | Problems Encountered and Solutions or Obstacles to Overcome | How was this flight different than previous flights? |
| Gemini 3 | John Young  Gus Grissom | Titan Rocket |  | Put 2 men into orbit at the same time; test the new rocket and capsule; return alive | Unreliable Titan rocket exploding on the launch pad; forgot the rotation of the Earth and lands 60 miles short of target | Titan gave more power; new capsule held 2 people; practice changing altitude, orbit |
| Gemini 4 | Ed White  Jim McDivitt (“Gemini Twins”) | Titan Rocket | Vomit Comet to practice weightless environment;  Spacesuit to protect from hazards in space | EVA; 4 day flight—62 orbits | Can people work in space? How to protect astronauts from hazards of space—temp and vacuum | Longer flight; EVA; use of spacesuit |
| Gemini 7 | Frank Borman  Jim Lovell | Titan Rocket | Control system on capsule that allows capsules to fly within 6 inches of each other | Rendezvous; track a missile from space; long-term space flight | Meet up with and fly within inches of another spacecraft; stay in space for 14 days to make sure humans could survive trip to moon | Flew in close formation; stayed in space for 2 weeks |
| Gemini 6 | Wally Shiraz  Tom Stafford | Titan Rocket | Control system on capsule that allows capsules to fly within 6 inches of each other | Rendezvous | Fly within inches of another spacecraft; rebuild the pad to launch 3 days after the 7’s flight; faulty valve caused engine shut down just before it exploded | Flew in close formation |
| Gemini 8 | Dave Scott Neil Armstrong | Titan Rocket |  | Rendezvous and dock with Agena target vehicle. (Extended EVA was a goal, but not accomplished) | Spacecraft thruster got stuck causing spacecraft to spin; Armstrong used the retro rockets to stop the spin; landed across the planet from intended site | Docking with another spacecraft in space |
| Gemini 9 | Tom Stafford Gene Cernan | Titan Rocket | Rocket pack to practice space walk; Jet Pack to maneuver in space | Extended EVA—do work in space; test-fly jet pack | Cernan’s visor fogged up; heart-rate went up due to stress | EVA failed |
| Gemini 12 | Buzz Aldrin |  | Practice underwater to simulate weightless environment; additional foot and hand-holds on the outside of spacecraft | Extended EVA—5 hours of space walking | Had to overcome problems of stress in past attempts (fogged-up visor, increased heart-rate) | Extended EVA was successful |

**When We Left Earth** Episode 3: Landing the Eagle

**Name of the Project: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

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| --- | --- | --- | --- | --- | --- | --- |
| Name of Mission | Astronauts | Rocket Used | Training and Additional Technology | Goals | Problems Encountered and Solutions or Obstacles to Overcome | How was this flight different than previous flights? |
| Apollo 1 |  |  |  |  |  |  |
| Apollo 8 |  |  |  |  |  |  |
| Apollo 9 |  |  |  |  |  |  |
| Apollo 10 |  |  |  |  |  |  |
| Apollo 11 |  |  |  |  |  |  |

**When We Left Earth** Episode 3: Landing the Eagle

**Name of the Project: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

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| --- | --- | --- | --- | --- | --- | --- |
| Name of Mission | Astronauts | Rocket Used | Training and Additional Technology | Goals | Problems Encountered and Solutions or Obstacles to Overcome | How was this flight different than previous flights? |
| Apollo 1 | Roger Chaffee, Gus Grissom, Ed White | None | This was a training exercise | Test the new 3-man capsule | It was a training exercise in which the electrical wiring sparked a fire in the high-oxygen environment and killed the 3 astronauts | First Americans killed during the first space flight disaster; |
| Apollo 8 | Frank Borman, Jim Lovell, Bill Anders | Saturn 5—size of a 35-story building, 1 million gallons of fuel | Lessons learned from Apollo 1 used to redesign the capsule | Go to moon, circle it 10 times, return to Earth alive | Escape Earth’s gravity; Correct aim—hit the moon’s orbit exactly—don’t crash into the surface or miss it completely and get lost in outer space; fire the rockets with perfect timing to return to Earth | To the moon! Farthest humans had ever been; hitting Earth’s atmosphere at a record 25,000 mph |
| Apollo 9 | David Scott, Rusty Shwagart, Jim McDivitt | Saturn 5 | Test-rig—1/6 gravity held up by cable; LLTV—Lunar Landing Training Vehicle | Fly the lunar module(LEM) in Earth’s orbit; rendezvous and dock with Apollo capsule to return to Earth | Putting astronauts into a vehicle that could not return to Earth | Testing the lunar module |
| Apollo 10 | Tom Stafford, John Young, Gene Cernan | Saturn 5 | LLTV | Fly the lunar module in the moon’s orbit—dress rehearsal for moon landing |  | Test the lunar module in moon’s orbit |
| Apollo 11 | Michael Collins, Neil Armstrong, Buzz Aldrin | Saturn 5 | LLTV, Geology training | Land on the moon, EVA on the moon, and return safely to Earth | communication problems between LEM and mission control, computer alarms because the computer had more jobs than it could handle; planned landing site was unsafe; Armstrong flew across to find new landing site; LEM running out of fuel—landed with 17 seconds of fuel left | First moon landing!! |